IN THE SPECIFICATION

1.73(b)(1)

In the cross-reference to related applications, please amend such paragraph by adding the following sentence to the end of such cross-reference – There is another application which is related to and claims priority from U.S. Patent Application Serial No. 09/366,685 and is co-pending as Serial No. 09/775,106.

IN THE CLAIMS

46. (Amended) A method of ablating or changing properties in structure of non-biologic materials laser induced breakdown with a pulsed laser beam, said method comprising the steps of:

B1

generating a beam of one or more laser pulses characterized by a pulse width with a relationship of fluence breakdown threshold versus laser pulse width having a distinct change in slope, having a pulse width approximately equal to or less than a pulse width at which laser induced breakdown becomes essentially accurate; and

directing said beam to the material.

47. (Amended) A method of ablation or changing properties in structure of non-biologic materials laser induced breakdown in a volume characterized by a maximum dimension with a pulsed laser beam comprising:

generating a pulsed laser beam characterized by a pulse width with a relationship of fluence breakdown threshold versus laser pulse width having a distinct change in slope, characterized by a wavelength of operation that is greater than said dimension; and

directing said beam to the material.

48. (Amended) A method of ablation or changing properties in structure of non-biologic materials with a pulsed laser beam comprising:

generating a pulsed laser beam characterized by a pulse width with a relationship of fluence breakdown threshold versus laser pulse width having a distinct change in slope, having at least one pulse with a pulse width sufficiently short that the size of the feature created in the material is not substantially limited by thermal diffusion in the material; and directing said beam to the material.

B1

49. (Amended) A method of ablation or changing properties in structure of non-biologic materials characterized by a thermal diffusivity, D, with a pulsed laser beam having a pulse width, T, characterized by a pulse width with a relationship of fluence breakdown threshold versus laser pulse width having a distinct change in slope, said method comprising the steps of:

generating a beam of one or more laser pulses having a pulse width sufficiently short so that the thermal diffusion length $l_{th}=Dt^{1/2}$ in the material is significantly smaller than the absorption depth (1/a), where a is the absorption coefficient for the radiation; and directing said beam to the material.

50. (Amended) A method of ablation or changing properties in structure of non-biologic materials with a pulsed laser beam characterized by a beam shape and a fluence and a pulse width with a relationship of fluence breakdown threshold versus laser pulse width having a distinct change in slope, comprising, generating a beam

having at least one pulse with a pulse width sufficiently short so that the affected area is substantially determined solely by the beam shape and fluence in relation to the threshold for laser induced breakdown; and

directing said beam to the material.

53. (Amended) The method according to claim 52 wherein the material comprises at least two layers and laser induced breakdown substantially affects one layer and not the other.

54. (Amended) The method of claim 53 wherein the material comprises a layer of metal on glass and laser induced breakdown is induced in the layer of metal.

55. (Amended) The method of any of claims 46-50 wherein laser induced breakdown is induced on the surface of the material.

56. (Amended) The method of any of claims 46-50 wherein laser induced breakdown is induced beneath the surface of the material.

61. (Amended) The method of claim 56 in which laser induced breakdown causes thermal-physical changes in state leading to an irreversible change in the material.

B4

63. (Amended) The method of any of claims 46-50 in which laser induced breakdown includes changes caused by one or more of ionization, free electron multiplication, dielectric breakdown, plasma formation, and vaporization.

B5

67. (Amended) The method according to any of claims 46-50 comprising scanning the beam along a predetermined path beneath the surface of the material to induce laser induced breakdown therein to a depth smaller than the Rayleigh range.

68. (Amended) The method according to any of claims 46-50 comprising laser induced breakdown of a material used in one of micromachining, integrated circuit manufacture and encoding data in data storage media.

69. (Amended) The method according to any of claims 46-50 comprising laser induced breakdown in a spot without adversely affecting peripheral areas adjacent to the spot.

B1

78. (Amended) A method for laser induced breakdown of a non-biological opaque or transparent material with a pulsed laser beam, the material being characterized by a relationship of fluence threshold at which breakdown occurs versus laser pulse width that exhibits a distinct change in slope at a characteristic laser pulse width, said method comprising the steps of:

generating at least one laser pulse which has a pulse width equal to or less than said characteristic laser pulse width; and

directing said pulse to a point at or beneath the surface of the opaque or transparent material.

79. (Amended) A method for laser induced breakdown of a metal layer on a glass substrate with a pulsed laser beam, the metal being characterized by a relationship of fluence threshold at which breakdown occurs versus laser pulse width that exhibits a distinct change in slope at a characteristic laser pulse width, said method comprising the steps of:

generating at least one laser pulse which has a pulse width equal to or less than said characteristic laser pulse width; and

directing said pulse to a point at or beneath the surface of the metal.

80. (Amended) A method for laser induced breakdown of a first layer of non-biologic material on another layer of non biological material with a pulsed laser beam, without substantially affecting the first layer, the first layer being characterized by a relationship of fluence threshold at which breakdown occurs versus laser pulse width that exhibits a distinct change in slope at a characteristic laser pulse width, said method comprising the steps of:

generating at least one laser pulse which has a pulse width equal to or less than said characteristic laser pulse width; and

directing said pulse to a point at or beneath the surface of the first layer.